

The “*ADDICTED*” Brain

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Addiction Medicine

October 29, 2017

ABUSE vs ADDICTION

ABUSE

Lack of Willpower

Poor Judgment

Bad Behavior

Bad Choices

WHAT IS
ADDICTION?

The 4 C's & a "D"

Compulsive use

Inability to Control use

Continued use despite consequences

Cravings

Denial

Addiction is a Chronic Brain Disease

- Not a lack of will power or poor judgment or bad behavior or bad choices
- DRUG USE PRODUCES BRAIN DAMAGE!
- Neurotransmitter mediated
(not under conscious control)



Drug Addiction

**A chronic relapsing syndrome that moves
from an impulse control disorder
involving positive reinforcement to a
compulsive disorder involving negative
reinforcement**

The good news is

Drug abuse is a preventable
behavior

&

Drug addiction is a treatable
disease

Drug taking & other
addictive behaviors

“HIJACK”

the brains reward system

INITIAL DRUG USE IS A
VOLUNTARY BEHAVIOR....

A PERSON *CHOOSES* OR DID
CHOOSE TO TAKE A DRUG OR
ALCOHOL FOR THE 1ST TIME

So what is Addiction?

We now know that while the initial decision to use drugs and/or alcohol is voluntary; drug addiction is a disease of the brain that compels a person to continue taking drugs despite their many adverse health & life consequences

The brain of an addict/alcoholic works differently . . .

- The brain is/was different prior to substance use due to genetics/heredity
- Brain changes occur over the course of substance use

• ***ADDICTS THINK DIFFERENTLY!***

• ***ADDICTS HEAR DIFFERENTLY!***



SOBER Logic



- “I won’t take this medication because it’s only been on the market for 15 years and I’m concerned it isn’t safe.”
 - Male admitted to psych unit after using IV bath salts

SOBER Logic



- “I don’t like wine so it doesn’t matter if I drink it.”
 - Relapsed after 20 years of sobriety

SOBER Logic



- “I’ve really learned my lesson; next time I won’t stop drinking.”
 - Male patient after long and painful detox

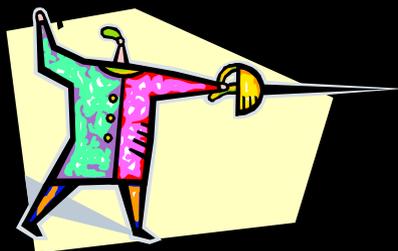
SOBER Logic



- “I can’t use birth control pills because I’m concerned about side effects.”
 - Pregnant opiate addict

Addicts “*THINK*” differently

- All thoughts, feelings, and emotions are hard-wired to support continued use.
 - “Good” addicts will convince you that you are the one with the problem . . .
- Recovery means, literally, fighting your own brain.



Addicts “*HEAR*” differently

- What you said
 - “Your baby is unlikely to suffer physical abnormalities from your having smoked marijuana while pregnant.”



- What she heard
 - “It’s okay for you to smoke marijuana during pregnancy.”

- All addictive drugs appear to share a rather mysterious property:
 - ***“Better than the real thing”***
 - Better than what our reward circuitry was designed to do by evolution to reward – food, sleep, sex, friendship, etc
 - ***“Better than they were the last time around”***
 - At least it seems that way to the addict - alcoholic

Who's susceptible?

- The biggest risk factor is the age at which you start using
- Most vulnerable in early teenage years, when our brains are most plastic
- The younger you start, the more likely you are to drink, drug, smoke

The biggest risk factor is the initial use of an addictive substance.

***“IT’S IMPOSSIBLE TO GET
ADDICTED IF YOU NEVER TAKE
THE DRUG”***

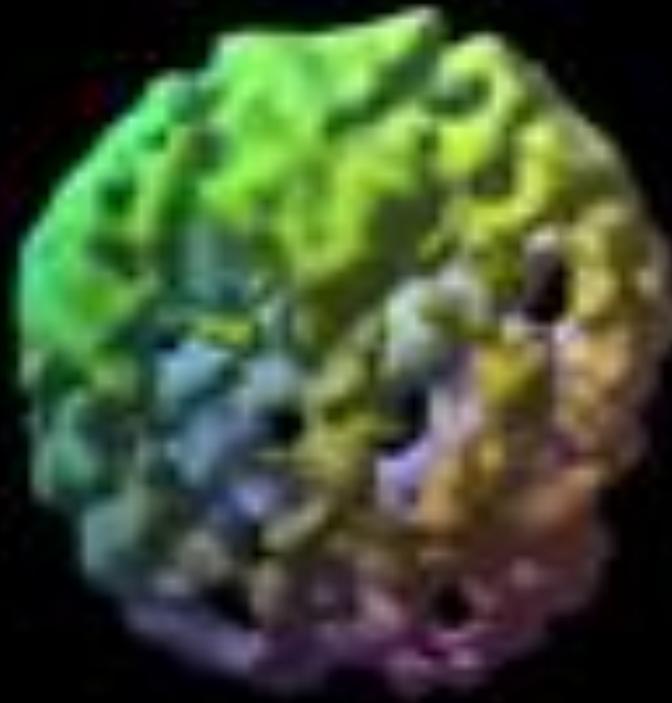
“SPECT” IMAGING

- ***SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY***
 - **NUCLEAR MEDICINE SCAN**
 - **EVALUATES CEREBRAL BLOOD FLOW & BRAIN METABOLIC ACTIVITY**
-

39 YEAR OLD HEROIN USER



25 YEAR OLD METHADONE USER



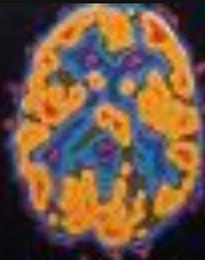
33 YEAR OLD METH USER



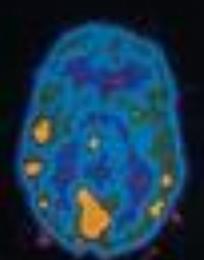
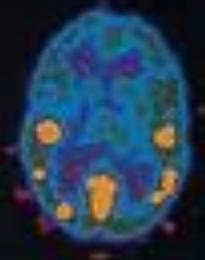
40 YEAR OLD COCAINE USER



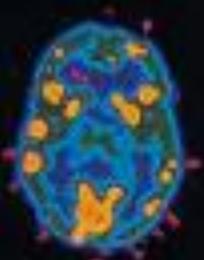
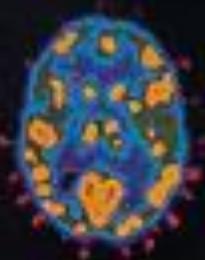
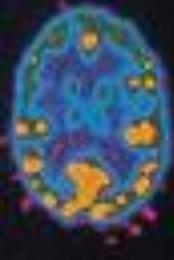
PET SCAN



NORMAL



COCAINE ABUSER (10 days)



COCAINE ABUSER (100 days)

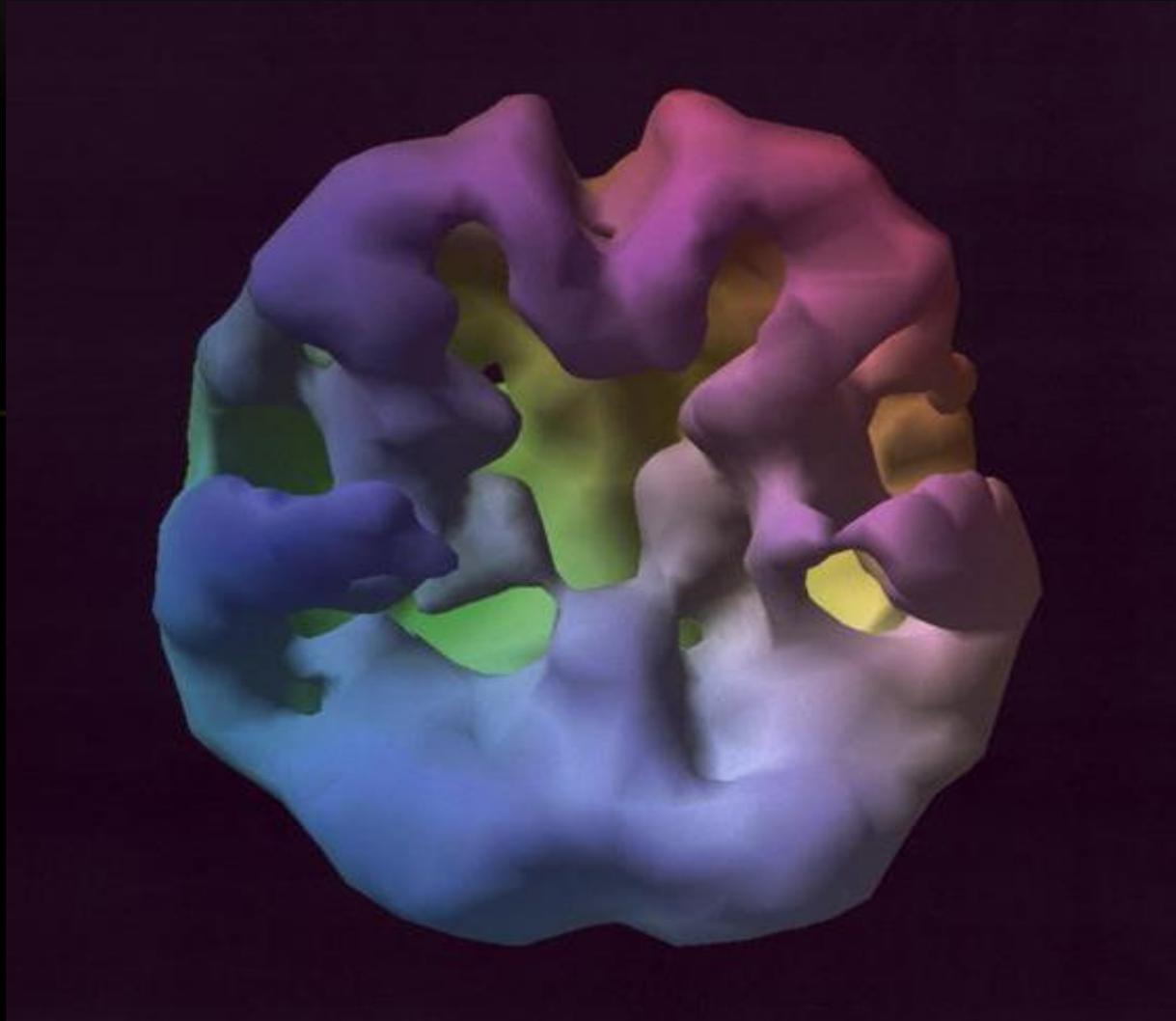
38 YEAR OLD ALCOHOLIC



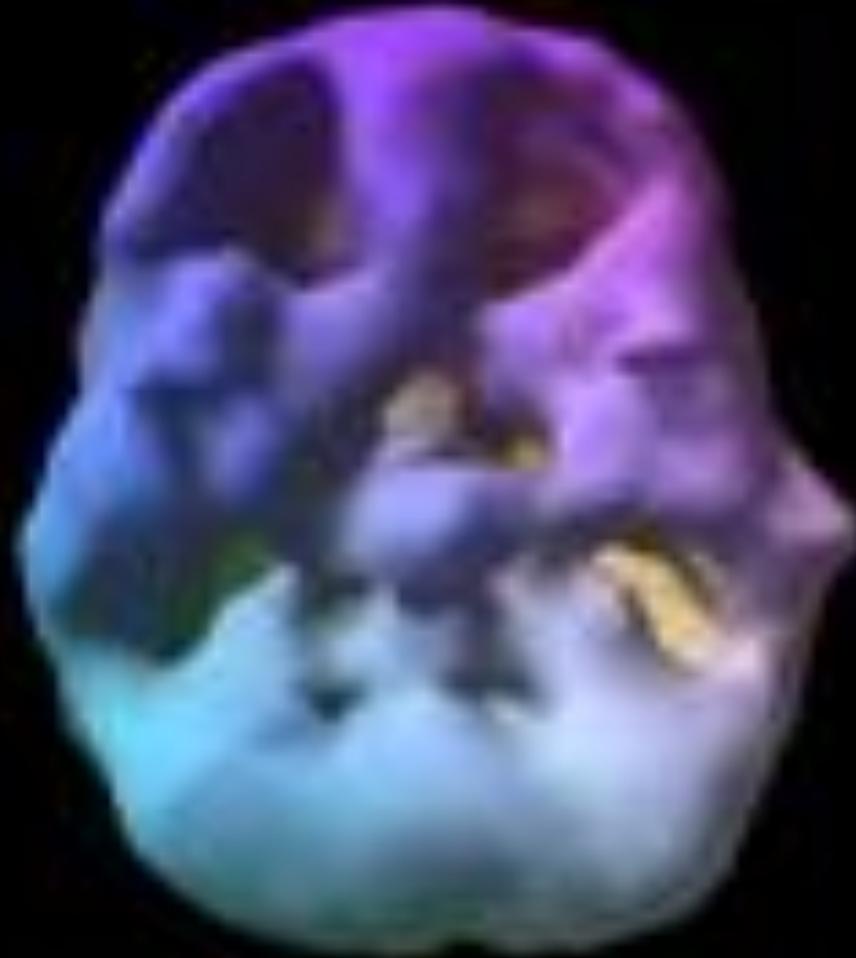
45 YEAR OLD SMOKER



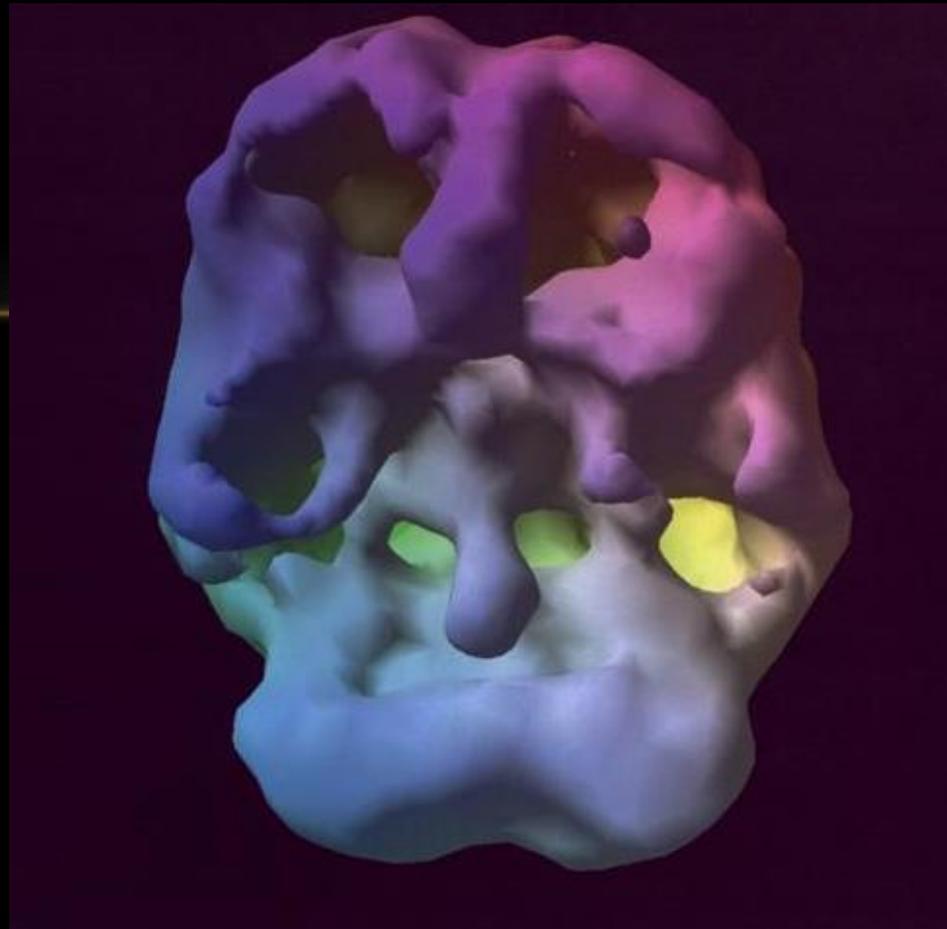
INHALANTS



18 YEAR OLD THC USER

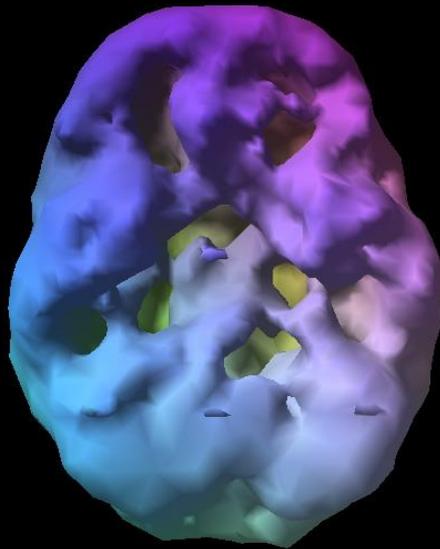


DAILY THC USE - 7 YEARS

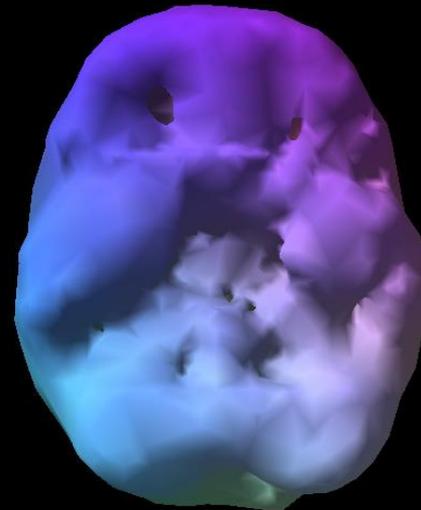


ALCOHOL:

Intoxication



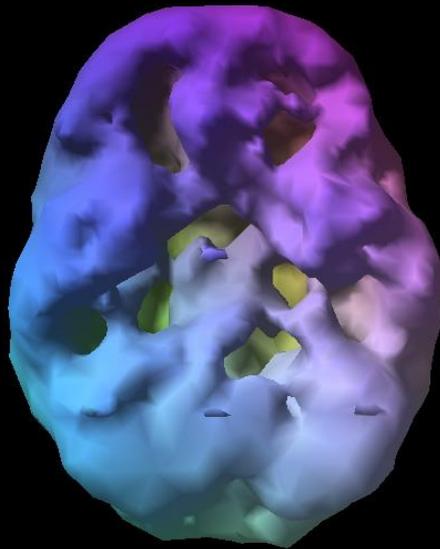
Sober: 30 days



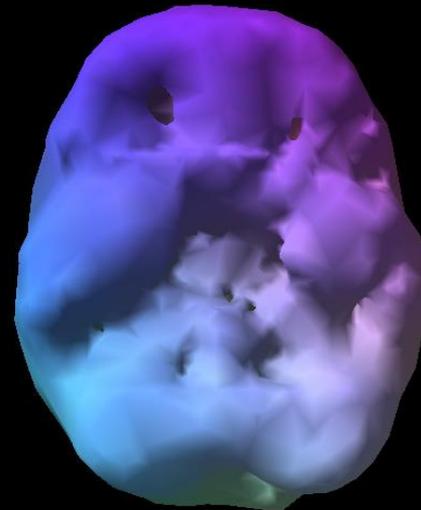


ALCOHOL:

Intoxication



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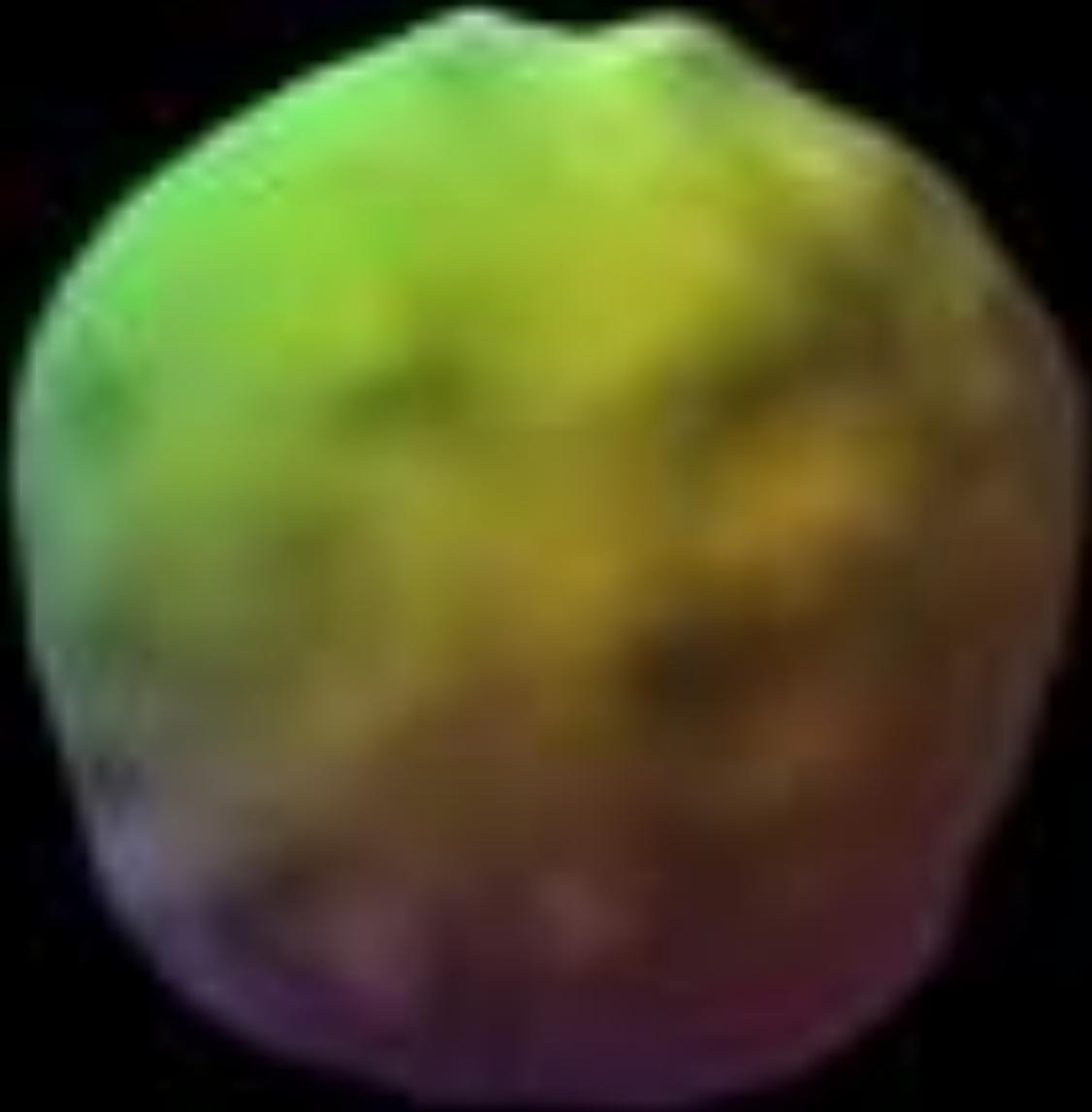


DURING SUBSTANCE USE

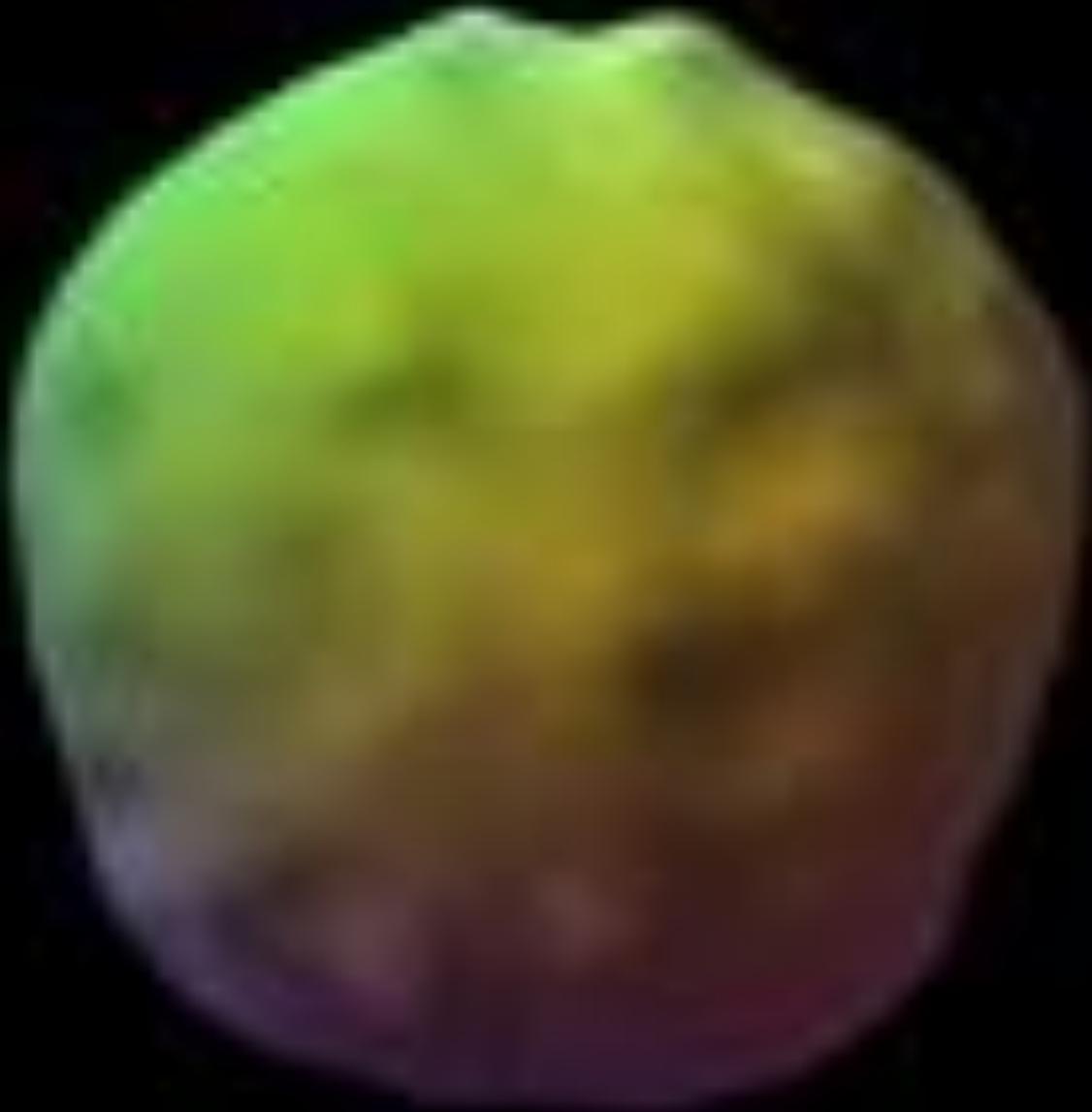


A YEAR SUBSTANCE & DRUG FREE





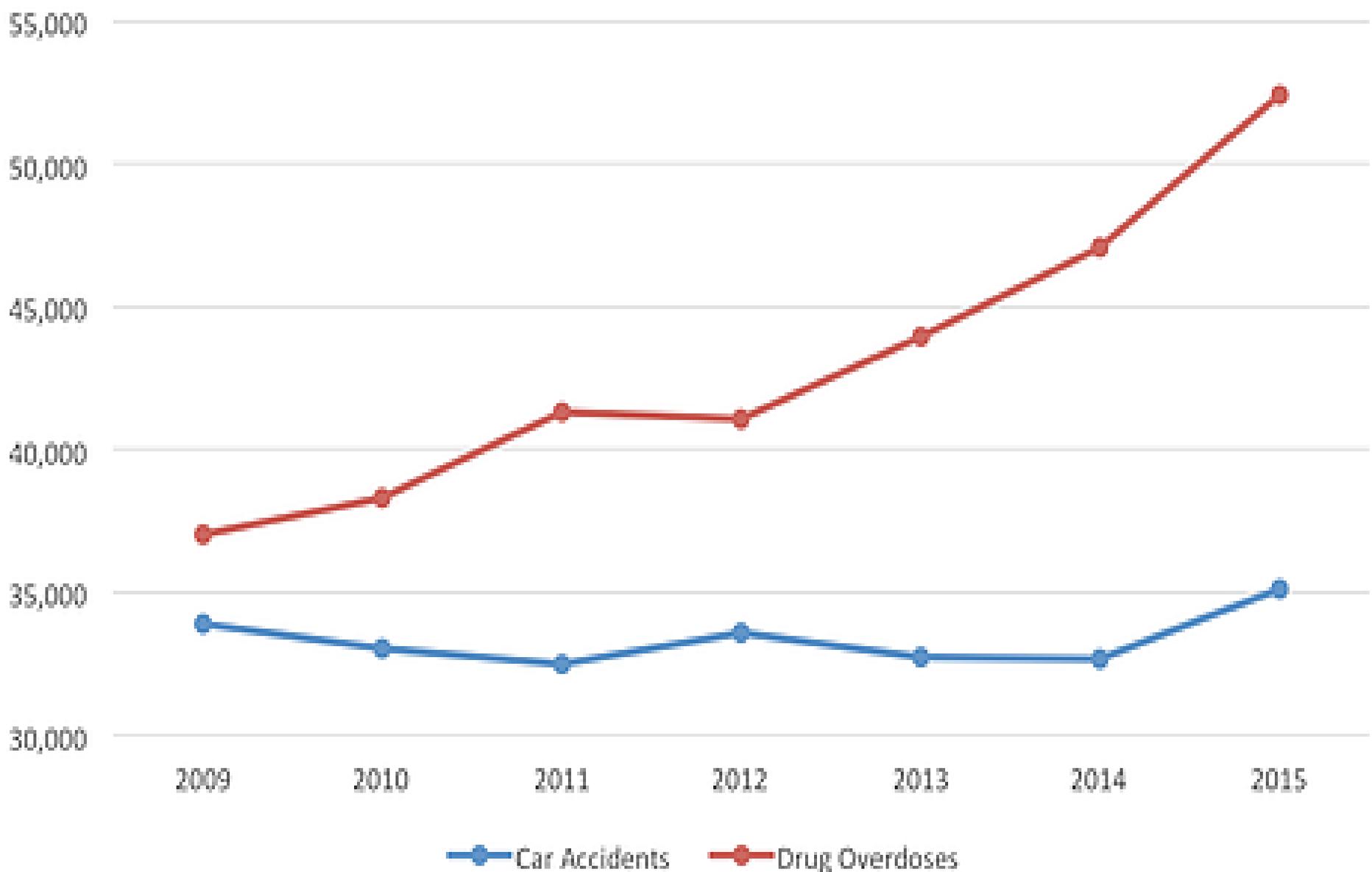




The Epidemic

“Facing Addiction in America”

Deaths Per Year



How Big of an Issue?

- It is an Epidemic
- Equal opportunity syndrome
- Claims victims from all walks of life
- It continues to be a growing problem

theguardian



Teen drug overdose rate in US rose 20% in 2015 after years of decline

A new report has also found the rate of overdose from synthetic opioids has increased sixfold since 2002, while heroin death rates have tripled

Most Opioids Prescribed for Patients With
Mental Health Disorders

August 07, 2017

Physicians Are Still Prescribing Too Many Opioids in the US

Heroin use is part of a larger substance abuse problem.

Nearly all people who used heroin also used at least 1 other drug.

Most used at least **3** other drugs.

Heroin is a highly addictive opioid drug with a high risk of overdose and **death** for users.

People who are addicted to...



ALCOHOL

are

2x



MARIJUANA

are

3x



COCAINE

are

15x



Rx OPIOID PAINKILLERS

are

40x

...more likely to be addicted to heroin.

SOURCE: National Survey on Drug Use and Health (NSDUH), 2011-2013

JLEHTINEN

From: [REDACTED]
Sent: 05/30/2017 09:44 AM
To: JLEHTINEN
Cc:
OnBehalf:
Patient:
Subject: This is our new 12:30 Person today. . .

[REDACTED] is from [REDACTED]. Her father is her emergency contact person. She has never been to treatment before counseling. [REDACTED] is addicted to i.v. heroine. She has one child, age five, and is working to obtain custody. She will need to get rides from others as she has no form of transportation to get here (but is coming from [REDACTED]). She has been told about UPHP rides. She has bipolar and depression. [REDACTED] has admitted to using fentanyl and heroine.

UPHS Behavioral Health

580 West College Ave

Marquette, MI 49855

P: (906) 225-3985 F: (906) 228-0162

Patient ID:

DOB:

Age: 26 years **Gender:** F

05/30/2017

Date: 05/30/17 : 12:31pm

Title: Drug Screen Results

Providers:

Name:

DOB:

MR#:

Physician: jll

Lab: URINE DRUG AMP: positive

Lab: URINE DRUG BAR: negative

Lab: URINE DRUG BZO: negative

Lab: URINE DRUG COC: negative

Lab: URINE DRUG THC: positive

Lab: URINE DRUG MTD: positive

Lab: URINE DRUG MET: positive

Lab: URINE DRUG MOP: positive

Lab: URINE DRUG OXY: positive

Lab: URINE DRUG PCP: negative

Lab: URINE DRUG MDMA: negative

Lab: URINE DRUG TCA: negative

Lab: URINE DRUG CONLINE: present

Lab: URINE DRUG LOT #: I6428

Lab: URINE DRUG EXPDATE: 1-18

Lab: BUPRENORPHINE: negative

Lab: BUPRE CONT LINE: present

Lab: BUPRE BACKGR CLEAR: clear

Lab: BUPRE LOT#: u0560

Lab: BUPRE EXP DATE: 1-18

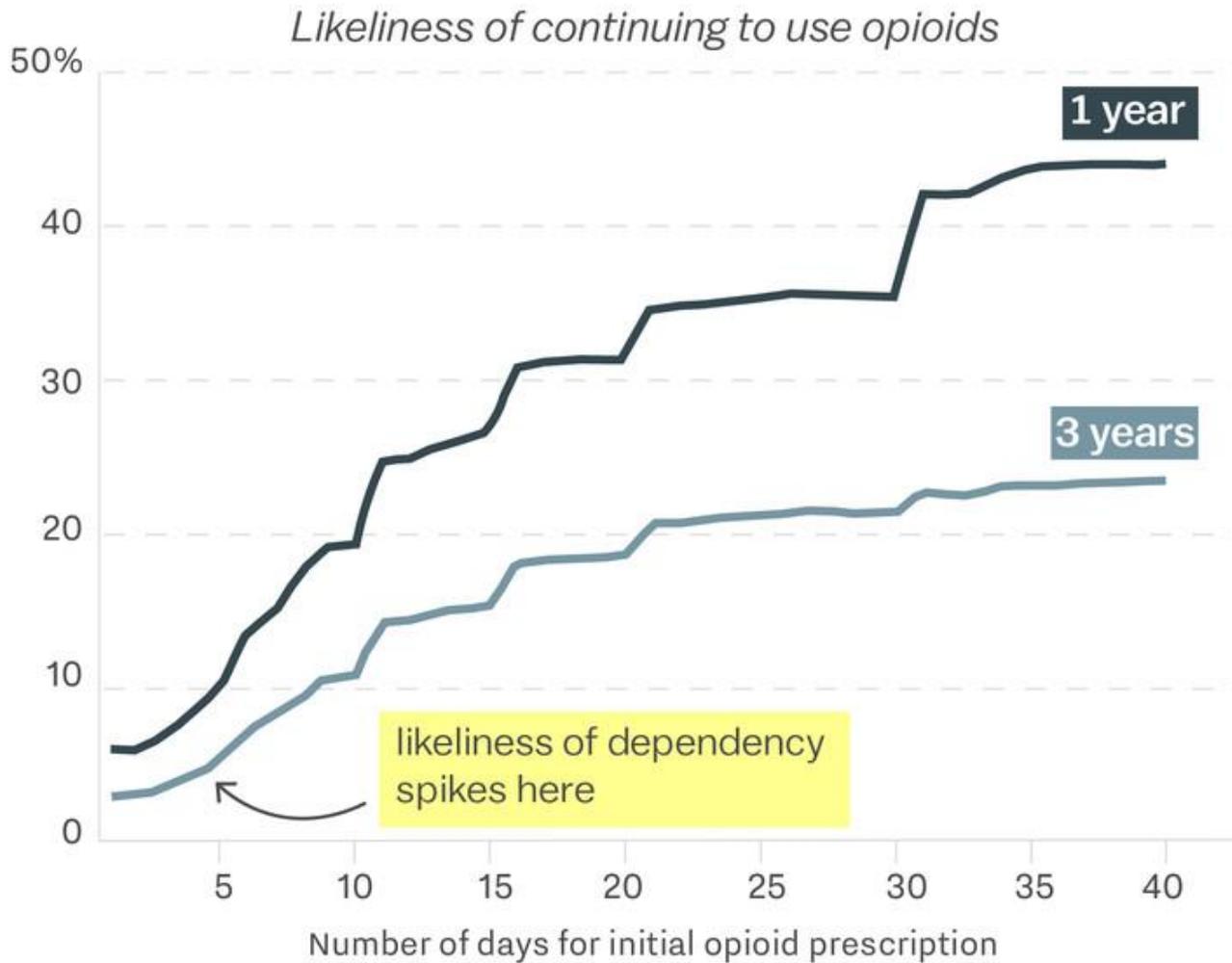
Lab: DRUG TEST BY: tg

DX: F11.20

August 24, 2017

Dose or Duration of Rx: Which Has Greater Impact on Opioid Use Disorder?

Risk of continued opioid use increases at 4-5 days

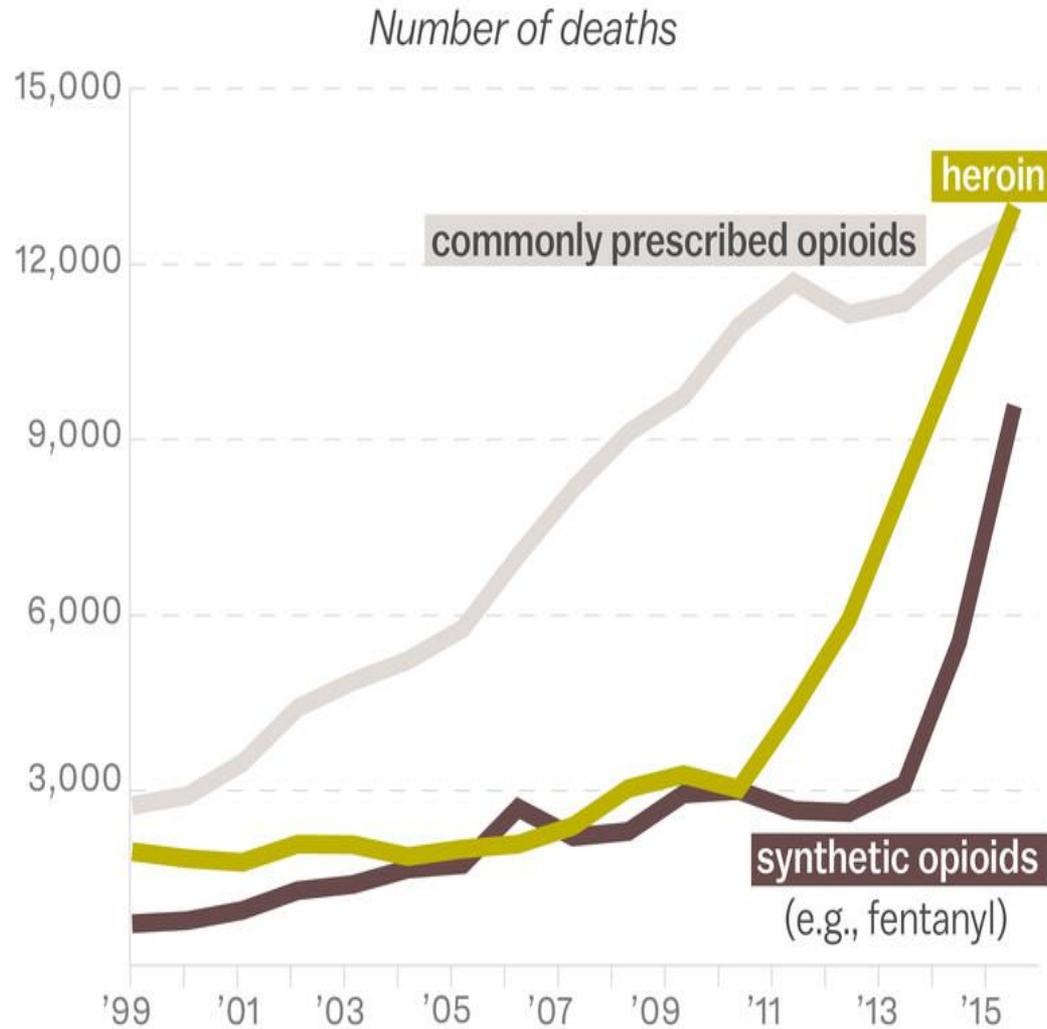


Source: Centers for Disease Control and Prevention

Credit: Sarah Frostenson

Vox

More drug overdose deaths now involve heroin than prescription painkillers



Source: CDC WONDER
Credit: Sarah Frostenson

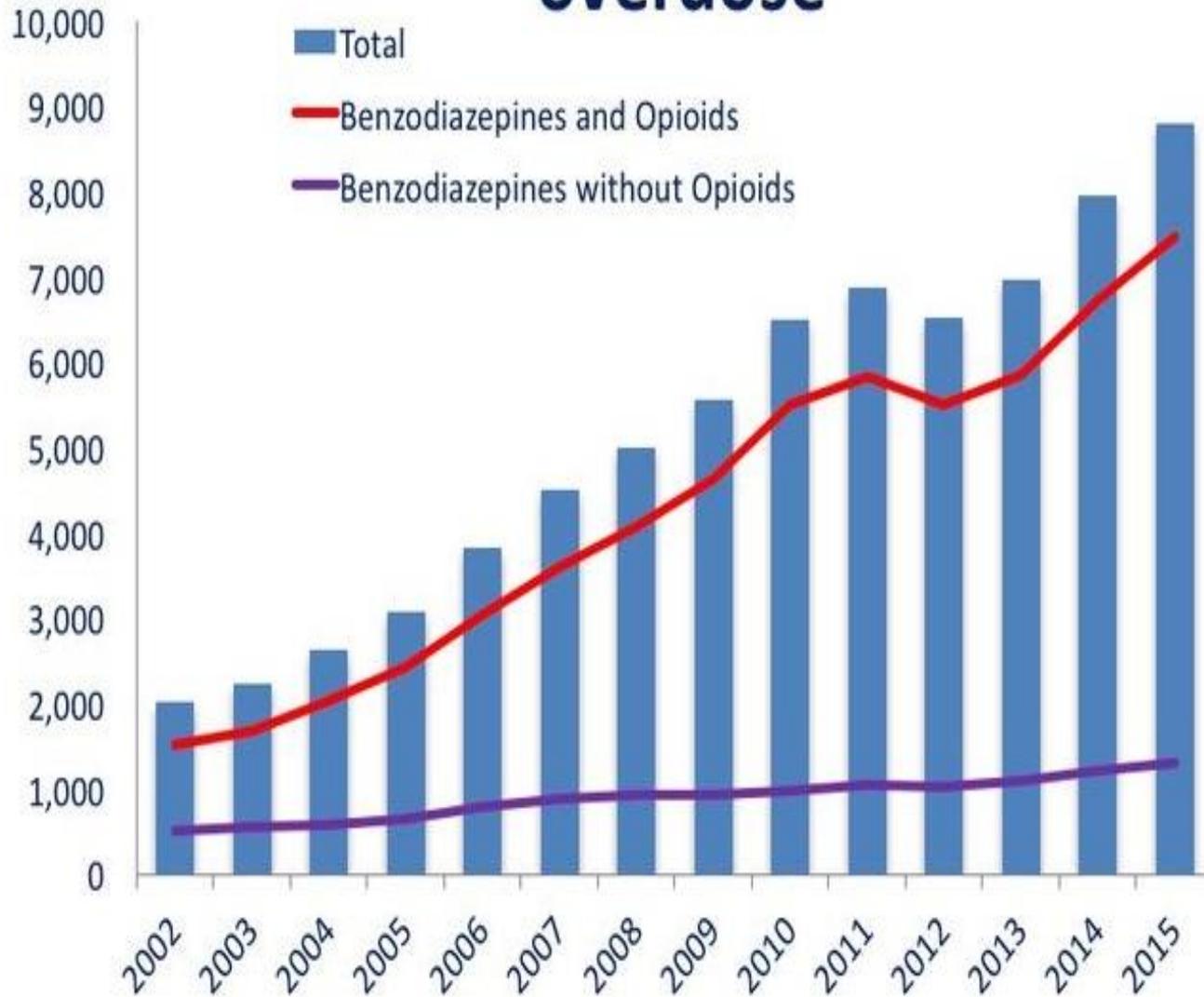
Vox

August 23, 2017

Opioid Prescribing, Use Continues Even After Overdose



Opioid involvement in benzodiazepine overdose



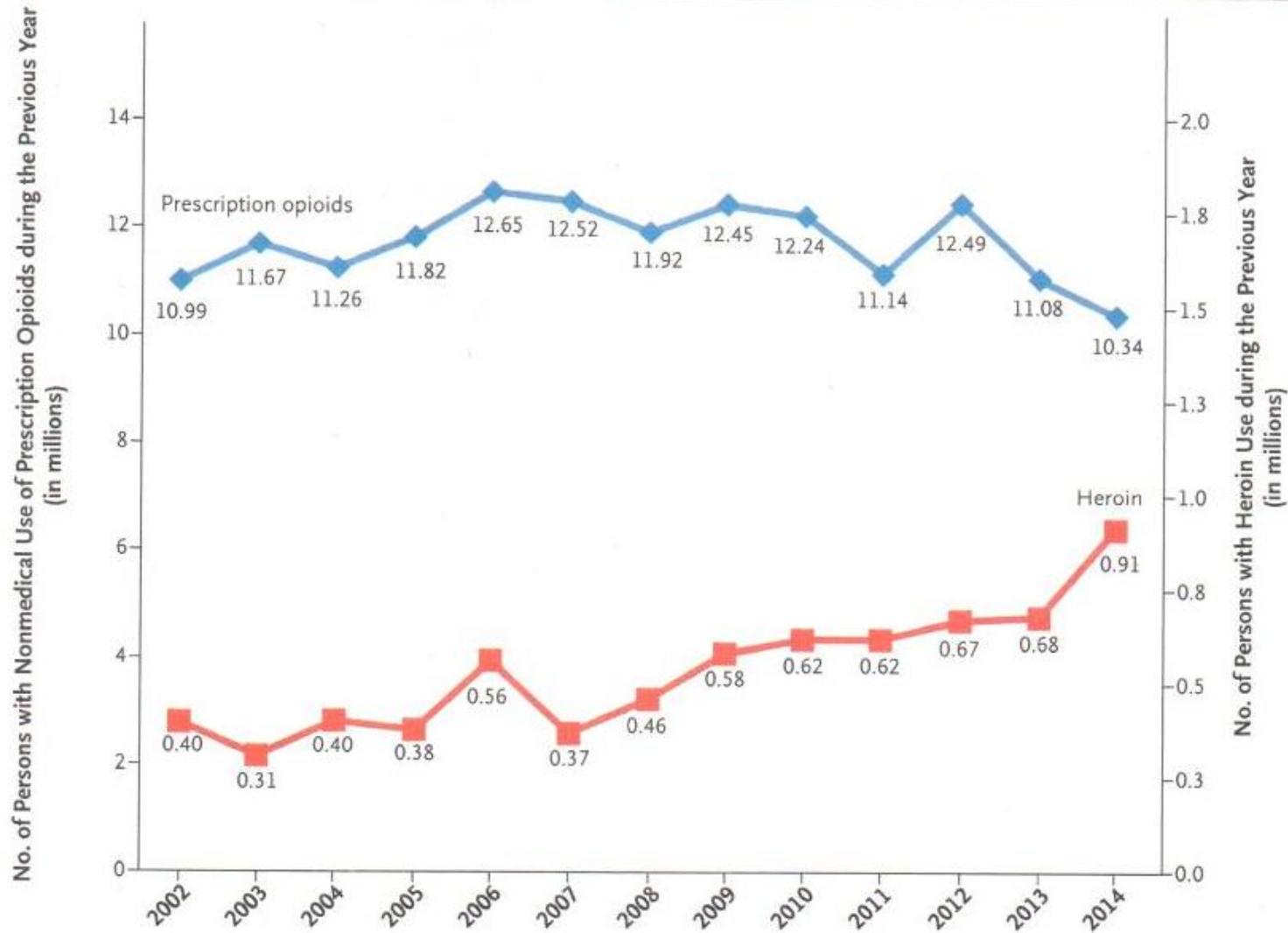


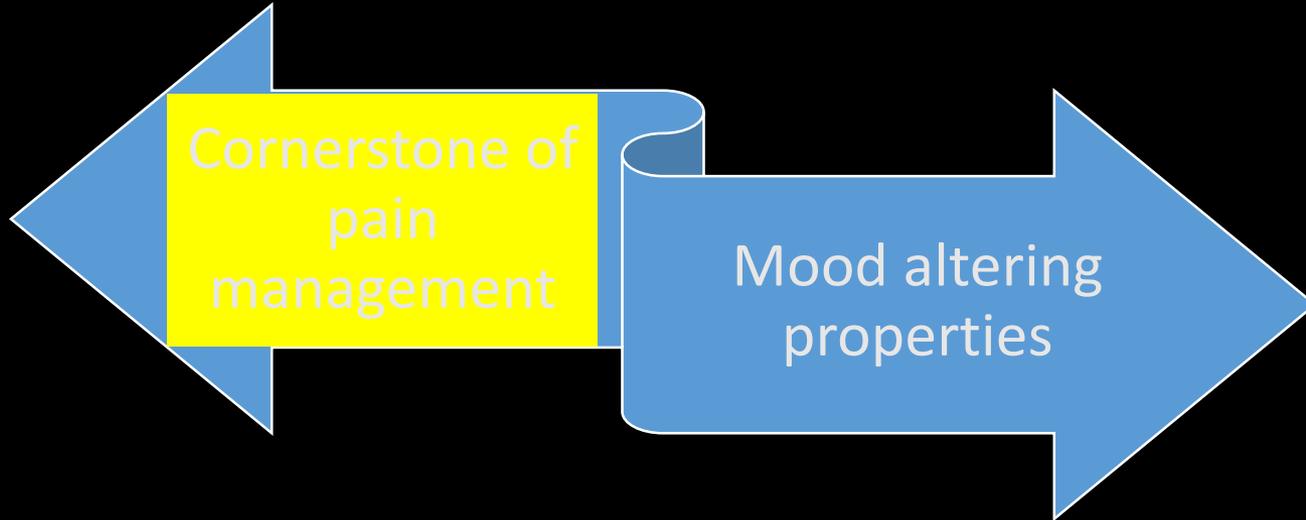
Figure 2. Nonmedical Use of Prescription Opioids and Heroin during the Previous Year among Noninstitutionalized Persons 12 Years of Age or Older, 2002–2014.

Data are from the Center for Behavioral Health Statistics and Quality.²

Does taking opiates lead to addiction?

- People able take narcotic pain meds w/o developing an addiction to them
- Are opiates less addictive when taken by people who have genuine pain?
- My experience: *genuine pain not reliably protective against addiction*

Opioids: Double-edged sword



What is the key driver
of the opioid
epidemic?

**An underlying Substance Use
Disorder (SUD)**



ASAM American Society of
Addiction Medicine

≡ MENU

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Patients with Addiction Need Treatment - Not Stigma

by AMA Task Force to Reduce Opioid Abuse | December 15, 2015

K2/SPICE – SYNTHETIC CANNABINOIDS



Effects of Spice Use

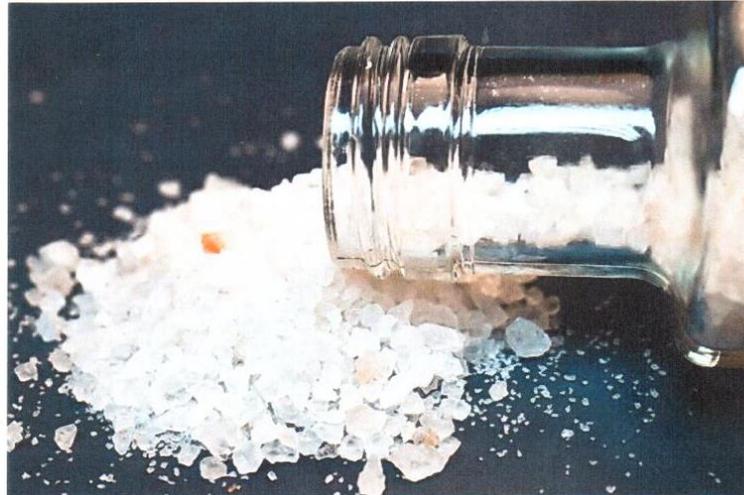
- Agitation
- Racing heartbeat
- Vomiting
- Intense hallucinations
- Seizures

Source: National Institutes of Health, NIDA InfoFacts: Spice, January, 2011.

Meet flakka, the drug police say is making people run around nude and have sex with trees

Updated by German Lopez on May 18, 2015, 9:00 a.m. ET 

[@germanrlopez](#)  german.lopez@vox.com



Flakka spills out of a bottle.

Drug Enforcement Administration

What does it take for a man to run naked through a Florida neighborhood, try to have sex with a tree, and claim to be the mythical god Thor? According to a report by the

DEA Now Monitoring Krokodil, a Deadly Morphine Derivative

By **Joshua Rhett Miller**

Published June 28, 2011

FoxNews.com



A man prepares heroin in Zhukovsky, Russia, near Moscow. To produce krokodil, which has a comparable effect to heroin but is much cheaper to make, users mix codeine with gasoline, paint thinner, iodine, hydrochloric acid and red phosphorous. (Reuters)

EXCLUSIVE: A new designer drug called krokodil -- a derivative of morphine that can turn an addict's skin greenish, scaly and cause it to rot away -- is being eyed by officials at the Drug Enforcement Administration, FoxNews.com has learned.

■ SIMILAR TO HEROIN

■ MIX OF CODEINE

■ GASOLINE

■ PAINT THINNER

■ OIL

■ ALCOHOL

FOX 10

KROKODIL

5:11 96°

STREET DRUG DESTROYS FLESH

BATH SALTS

Effects similar to cocaine, LSD & methamphetamines

U - 47700

- Heroin, fentanyl, and prescription painkillers - primary drivers of addiction increases in recent years
- Carfentanyl - heroin cut with this drug
- 100 times more potent than fentanyl
- 10,000 more potent than morphine

How to combat an epidemic

- Many treatment programs do not offer evidence-based care
- Most treatment programs offer minimal physician involvement
- There is a lack of Addiction Medicine physicians

- Our substance abuse treatment system has been ill prepared to address the opioid epidemic and overdose deaths
- Office based treatment of opioid use disorders has been slow to materialize
- 40% of U.S. Counties have no physician currently authorized to prescribe Buprenorphine

- Jail time, prison time, treatment time = Loss of tolerance
- 70 – 90% relapse after release
- High risk of overdose deaths
- Phillip Seymour Hoffman

Treatment Gap

- Inability to access
- Unaffordable
- Fear of shame & discrimination (STIGMA)
- Lack of services
- 40% know they have a problem - not ready to discontinue using

Issues unique to Addiction Treatment

- Medication Assisted Treatment (M.A.T.) reduces all cause mortality
- Medication Assisted Treatment has to be a part of a treatment program
- Medication Assisted Treatment is evidence based treatment for opioid use disorders, however it is not stand alone treatment

Myth: Medication assisted treatment substitutes one addiction for another

Fact: properly prescribed addiction medications reduce cravings & prevent relapse without causing a high

Myth: Medication assisted treatment should not be long term

Fact: There is no one size fits all duration of medication assisted treatment

Myth: Requiring people to taper off Medication Assisted Treatment helps them get healthy faster

Fact: Requiring people to stop taking addiction medications increases their risk of relapse

Myth: Courts are in a better position than doctors to decide appropriate drug treatment

Fact: NO !!!!!

Brain Chemistry of Addiction

- **Addiction is a disease, not a choice**
- **Progressive, Chronic and Fatal**
- **Young brains at risk due to unique stage of development**
- **Very treatable**
- **Prevention important**
- **Early interventions, assessment and treatment are the keys to success**

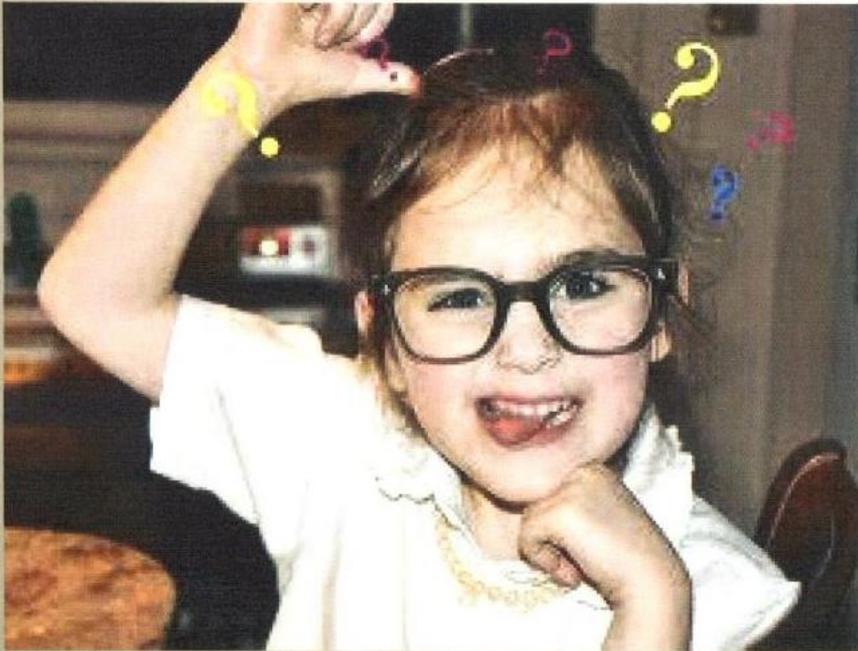
Why is drug and alcohol addiction a chronic medical disease?

Think of addiction like cancer:

- It is deadly if you get it and you don't get treated
- If you get the right treatment, it still could "come back" at anytime in the future
- It is similar to other chronic medical diseases:
 - Asthma
 - Diabetes
 - High Blood Pressure (Hypertension)

A person is on a riverbank and saves one drowning person after another, before stopping - exhausted.

- **How can I stop people from falling into the river?**



Questions?

Tired of listening?

